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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,487	12/15/2003	Robert Hong Leung Chiang	9930A	3809

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EXAMINER

ALI, MOHAMMAD M

ART UNIT	PAPER NUMBER
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3744

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,487

Applicant(s)

CHIANG ET AL.

Examiner

Mohammad M. Ali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 6-12, 14-15 and 17 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 and 5 of U.S. Patent No. 6,679,080. Although the conflicting claims are not identical, they are not patentably distinct from each other because they disclose the claimed elements.

Claims 6-18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 and 5 of U.S. Patent No. 6,679,080 in view of Brooks (4,326,390) and Cur et al., (5,157,941). Claims 1-2 and 5 disclose substantially of the applied claims 1-18 except refrigerated temperature at a temperature above 32 degrees F and a draw throw flow or air circulation through the evaporator. Brooks teaches the use of a refrigeration compartment maintaining between temperature 33 to 55 degrees F in a refrigerator (see abstract and column 3, lines1-3) and Cur et al., teach the use of a draw throw air circulation through an evaporator 24 in a refrigerator by a fan 38. See Fig. 5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 6-11, 13-14, 16 and 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reynard (5,502,979) in view of Kutscher et al. (6,378,605). Reynard discloses a refrigerated display cabinet comprising an insulated (a refrigerated cabinet is inherently insulated) cabinet 50 defining a product display area/shelves 1 maintained in a refrigerated condition at a temperature above 32 degree F (refrigerated space excluding freezer space is obviously at a temperature above 32 degrees F) and having a compartment 37 separate from the product display area 1 an evaporator 28 disposed in the compartment 37; at least one air circulator 29 disposed within the compartment 37 in cooperative relationship with the evaporator 28; and an air circulation circuit (23-26) connecting the product display area 1 and in direct air flow communication with the compartment 37. Reynard discloses the invention substantially as claimed as stated above. See Fig. 2. However, Reynard does not disclose a relatively high airside pressure drop evaporator. Kutscher et al. teach the use of a high airside pressure drop heat exchanger 10 with fin density ranging from 3 fins to 10 fins per inch in a heat exchanging system for the purpose of controlling pressure drop. Kutscher et al., also disclose a draw through flow by the action of a fan 12. See Fig. 1, column 12, lines 31-

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67. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the refrigerated display cabinet of Renard in view of Kutscher et al. such that a high air side pressure drop heat exchanger with fin density ranging from 3 to 10 fins per inch could be provided to in order to run a refrigeration system.

Claims 12, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renard in view of Kutscher et al., as applied to claims 6, 9 and 10 above, and further in view of Navarro (6,145,327). Renard in view of Kutscher et al., and discloses the invention substantially as claimed as stated above. However Renard in view of Kutscher et al. does not disclose a plurality of fans. Navarro teaches the use of a plurality of fans 16 along an evaporator coil 17 in a refrigerated case for the purpose of running a refrigeration system. See Fig. 7. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the refrigerated display cabinet of Renard in view of Kutscher et al., and further in view of Navarro such that a plurality of fans could be provided to in order to run a refrigeration system. For spacing the fan at a specific distance of 2 feet is an obvious design choice of the individual skilled in the art since there is no criticality or unexpected result from it

Response to Arguments

Applicant's arguments, see remarks pages 6-10, filed 12/16/05, with respect to the rejection(s) of claim(s) 6-18 under 103 have been fully considered but they are persuasive. The Applicant argued, "Kutscher et al. would not, and can not, be read by one having ordinary skill in the art to teach providing a relatively high air side pressure

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drop evaporator as taught by Applicants and recited in independent claims 6, 9 and 10.

Kutscher et al. teach enhancing the heat transfer coefficients of a fin and tube heat exchanger by increasing heat transfer surface area with high porosity fins while simultaneously maintaining a small boundary layer thickness over area and controlling, i.e. minimizing, the gas side pressure drop wide flow channels, e.g. wide fin spacing, to allow the cooling gas it passes through the fins sufficiently to limit pressure drop. -----

While Kutscher et al. does disclose an embodiment of a high porosity fin heat exchanger having a fin spacing ranging from 3 to 10 fins per inch, Kutscher et al. further state ---"In another preferred embodiment, a lower fin density, i.e. less than 3 fins per inch, is employed to reduce pressure drop by widening the channels and reducing channel pressure drop"


Applicant respectfully submit that having ordinary skill in the art would be led by Kutscher et al. to increase the spacing to provide wider flow channels between the fins to reduce pressure drop to permit the use of porous fins on the tubes of the evaporator in refrigerated display case of Renard. Kutscher et al. are concerned about controlling, i.e. limiting, air side pressure drop and can not be read to teach the advantage of using a relatively high air side pressure drop evaporator to improve air flow uniformity through the evaporator." The Examiner disagrees. Simply because The Applicant's evaporator comprises with a fin density of 6 to 15 fins per inch, Applicant's heat exchanger/evaporator is able to maintain high air side pressure drop to air flow uniformity through the heat exchanger/evaporator. And simply because of wide spacing of fins of Kutscher et al. having the claimed fin density 3 to 10 fins per inch but porous

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fins, Kutscher et al., are not able to do the same intended function of the Applicant's claimed invention. Only difference in fin arrangement of claimed invention and Kutscher et al. is porous fins. Examiner finds nothing wrong with a porous fins. The porous fins have more advantage over the non-porous fins by providing more heat transfer coefficient and controlling boundary layer development of gas flow patterns. See column 4, lines 33-56. Apart from those teaching Kutscher et al. also teach the basic use of air pressure drop by using non porous fins having the claimed fin density of 5 to 15 fins per inch as only needed by the Applicant. See column 2, lines 15-52. Therefore, rejections are proper. For further addition of double patenting rejections, the examiner considers for a non-final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (571) 272-4806. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-4834


MOHAMMAD M. ALI
PRIMARY EXAMINER

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MOHAMMAD M. ALI
PRIMARY EXAMINER